

REMARKS

Applicant appreciates the thorough examination of the application that is reflected in the Office Action dated October 7, 2003. Claims 1-25 are pending in the application. Reconsideration of the application is respectfully requested.

Interview Summary

Applicant thanks the Examiner for the courtesies extended during the telephone interview of February 9, 2003. Applicant summarizes some of the points made during that telephone interview below.

Claim Objections

Applicant respectfully submits that the above outlined claim amendments render this ground of objection moot. Accordingly, Applicant respectfully requests that this ground of objection be withdrawn.

Art-based Rejections

The Official Action rejects claims 1-25 under 35 U.S.C. 103(a) as being unpatentable over Mochizucki et al. (Encoder Packet (EP) 0 999 656) further in view of Noneman (USPN 5,887,252).

In rejecting claims 11 and 24, paragraph number 6 of the Office states that:

Regarding claims 11 and 24, Mochizucki et al. discloses a multicast transmission system. The system includes a base station for transmitting a multicast message on a single transmission channel and plural mobile terminals which receive the multicast message on the single communication channel (transmitting the multicast service on at least one channel). The mobile terminals include a measurer for measuring a reception power of the multicast message and judging whether the signal strength is powerful enough. They also include a transmitter for transmitting back to the base station a transmission-power-increment-requesting-signal for requesting the base station to increase a transmission power of the multicast message. Based on the information received from the mobile terminals, the base station can increase the power of the multicast message as needed (using channel quality information for at least one subscriber to determine the transmission format of the multicast service to the group of subscribers). See col. 2, line 21-48, and col. 6, line 57-col. 7, line 37. It is inherent that the base station will include a memory element and a processor for processing the instructions stored in that memory to increase or decrease the power depending on the information received from the mobile terminals. Mochizucki et al. also discloses modulating the multicast message but does not expressly disclose generating an identifier for a group of subscribers, wherein the identifier is for accessing a multicast service. Noneman discloses using a single spreading code for each multicast service. When receiving a

request for multicast service, the base station can issue an Extended Handover Direction Message (WEHDM) to the mobile terminal. The EHDM contains a field that specifies the code channel index that the mobile terminal is to use on the forward traffic channel. The channel is the same channel that the base station will use when transmitting the multicast information and corresponds to the Walsh code index used for spreading the data signal. The mobile station sets up its receiver to receive the specified Walsh channel and descramble it using a long code generated with the long code mask contained in the MULTICAST_GROUP field. See at least col2, lines 44-59, and col. 4, line 63-col. 5, line 48. It would have been obvious to a person of ordinary skill in the art at the time of the invention to use a single spreading code taught by Noneman for each multicast service group of Mochizucki et al. One of ordinary skill in the art would have been motivated to do this because it is more efficient to transmit the same spreading code to the various stations that will be receiving the same information. There is no need to have them use different spreading codes if they will be descrambling the same information. (Emphasis added)

Applicant respectfully disagrees and traverses these rejections for at least the following reasons.

The Mochizucki patent

The Mochizucki patent relates to a cellular mobile communication system comprising a multicast channel. As discussed in the Abstract of the Mochizucki patent:

Disclosed is a multicast communication system comprising: a base station (Fig. 3A;11) which transmits a multicast message to a single communication channel; and plural mobile terminals (Fig. 3B; 12, 13) which receive the multicast message on the single communication channel; wherein each of the mobile terminals (Fig. 3B; 12, 13) comprises: a receiver (31, 32, 36) for receiving the multicast message; a measurer (33) for measuring a reception power of the multicast message and judging whether or not the reception power is sufficient; a first transmitter (31, 35, 36) for transmitting a transmission-power-increment-requesting-signal for requesting the base station (Fig. 3A; 11) to increase a transmission power of the multicast message; and a switch (34) for enabling transmission of the transmission-power-increment-requesting-signal to the base station (Fig. 3A; 11) when it is determined that the reception power of the multicast message is not sufficient; wherein the base station (Fig. 3A; 11) comprises: a second transmitter (21, 22, 26) for transmitting the multicast message; a transmission power controller (24) for controlling the transmission power of the multicast message transmitted from the second transmitter (21, 22 26); and a receiver (22, 23, 26) for receiving the transmission-power-increment-requesting-signal which the mobile terminal (Fig. 3B; 12, 13) has transmitted; and wherein the transmission power controller (24) increases the transmission power of the multicast message when the base station (Fig. 3A; 11) receives the transmission-power-increment-requesting-signal. (Emphasis added)

Claims 11 and 24

Claim 24 relates to a method for broadcasting to a group of subscribers in a cellular communication network. Claim 24 requires:

generating an identifier for a group of subscribers, wherein the identifier is for accessing a multi-cast service;

using **channel quality information** for at least one subscriber to **determine the transmission format** of the multi-cast service to the group of subscribers; and

transmitting the identifier and the multi-cast service on at least one channel, wherein the **multi-cast service is transmitted in accordance with the transmission format determined by the channel quality information.** (Emphasis added.)

Applicant respectfully submits that the cited references fail to teach or suggest, for example, “using channel quality information for at least one subscriber to determine the transmission format of the multi-cast service to the group of subscribers,” or that “the multi-cast service is transmitted in accordance with the transmission format determined by the channel quality information,” as recited in claim 24.

The Office apparently asserts that Mochizuki’s teaching of “a power increment requesting signal” meets the limitation of “channel quality information,” and that Mochizuki’s teaching of “increasing the transmission power of the multicast message when the base station receives the transmission-power-increment-requesting-signal” meets the limitation of “using the channel quality information to determine the transmission format.”

Applicant submits that the Office is impermissibly interpreting the terms “channel quality information” and “transmission format” of claim 24 in a manner that is not consistent with the specification. Applicant further submits that the Office’s interpretation of the terms “channel quality information” and “transmission format” are not consistent with an interpretation that would be understood by those skilled in the art. *See* MPEP §2111.

The Application describes “channel quality information,” at, for example, ¶ [1022], [1029], lines 9-11, and ¶s [1030] through [1031]. ¶ [1022] discusses that:

Packet data systems traditionally transmit data to remote stations, from one to ten stations at a time. Data transmission occurs from a base station on a shared data traffic channel, which is accompanied by control information. The control information can comprise parameters of the data transmission, such as

modulation, coding, and power, which are adjusted by the base station using **channel quality feedback (CQF) information** about the remote station. CQF information is used to maximize the system throughput, minimize channel usage, and maximize the likelihood that a data transmission will reach the remote station with a reasonable quality. The CQF can be explicit through a transmission from the remote station or the CQF can be derived by the base station through transmission power levels. The base station transmits the control information in order to aid the remote station in decoding the associated data transmission. (Emphasis added.)

In one embodiment, measurements of channel interference (C/I) of the forward link common pilot signal serves as channel quality feedback indicators. In another embodiment, the scheduling element determines when the worst location subscriber has good channel conditions by transmitting test data packets to the worst location subscriber until acknowledgement signals arrive from the worst location subscriber. Once acknowledgement signals indicating the successful demodulation and decoding of the test data packet arrives, the scheduling element can commence the multi-cast. In another alternative embodiment, the scheduling element transmits test data packets to all subscribers and waits for acknowledgement signals from a predetermined percentage of the subscribers. The percentage could be anywhere from a simple majority of the subscribers to 100% of the subscribers.

At ¶s [1025] through [1027] the Application describes “transmission format,” and discusses that:

The condition of each channel will vary in accordance to distance to the base station, fading, and interference from other channels. In order to ensure delivery of the information within a desired quality level, such as a frame error rate (FER) of less than 1%, the various transmission parameters can be adjusted. As a simplistic example, if the channel conditions were bad, then the base station would transmit information to a remote station using a format where data symbols are repeated often in the packet. Hence, the receiving party could soft-combine any corrupted data symbols to attain the original information. However, if the channel conditions are good, then the base station could **transmit information to a remote station using a format** that does not repeat data symbols, since the receiving party is likely to receive the uncorrupted data symbols. Hence, although the same information is being carried to the remote stations, **the transmission formats of the data packets to each remote station can be different.**

An example of the **different transmission parameters** at different rates that can be used by a communication network is shown in Table 1.

Table 1 appears at page 8 of the Application, and illustrates examples of just some of the transmission parameters that can be different for a transmission to one subscriber versus a transmission to other subscribers. The parameters in Table 1 include data rate, number of slots, bits per packet, code rate, and modulation. Other parameters, such as symbol repetition and transmission duration over multiple frames, are not shown.

The transmission format is selected by adjusting and selecting appropriate transmission parameters.

Applicant submits that the Office is impermissibly interpreting the terms “channel quality information” and “transmission format” of claim 24 in a manner that is consistent with neither the specification nor with an interpretation that would be understood by those skilled in the art. *See* MPEP §2111. Accordingly, Applicant submits that Mochizucki fails to teach or suggest, for example, “using channel quality information for at least one subscriber to determine the transmission format of the multi-cast service to the group of subscribers,” or that “the multi-cast service is transmitted in accordance with the transmission format determined by the channel quality information,” as recited in claim 24. Applicant submits that Noneman is similarly deficient.

Thus, Applicant respectfully submits that the cited references fail to teach or suggest at least the above recitations of claim 11. Accordingly, Applicant respectfully submits that claim 11 is patentable over the cited references. In addition, Applicant respectfully submits that dependent claims 12-20 are separately patentable at least by virtue of their dependency from independent claim 11, and also because those claims include features that are neither taught nor suggested by the cited references. Applicant further submits that independent claim 24 is patentable for at least the same reasons.

Claims 1 and 23

Claim 23 relates to a method for broadcasting to a group of subscribers in a cellular communication network. Claim 23 requires:

generating an identifier for a group of subscribers, wherein the identifier is for accessing a multi-cast service;
using **channel quality information** for at least one subscriber to determine the **timing** of the multi-cast service to the group of subscribers; and

transmitting the identifier and the multi-cast service on at least one channel, wherein the **multi-cast service is transmitted in accordance with the timing determined by the channel quality information.** (Emphasis added.)

With respect to claims 1 and 23, the Examiner has asserted that the limitations of those claims are well-known or obvious, but has not cited a reference to support of this position. Applicant respectfully traverses this rejection, and to preserve Applicant's argument on appeal, Applicant requests that the Examiner provide an affidavit that supports the rejection of claims 1 and 23 based on the official notice of the Examiner. Alternatively, in the event the Examiner seeks to maintain this ground of rejection, Applicant requests that the Examiner provide documentary evidence that these features would indeed be well-known. *See* MPEP 2144.03, 37 C.F.R. § 1.104 (d)(2), and *In re Lee*, 277 F.3d 1338, 1344-45, 61 U.S.P.Q.2d 1430, 1435 (Fed. Cir. 2002) (finding that reliance on "common knowledge and common sense" did not fulfill the PTO's obligation to cite references to support its conclusions as PTO must document its reasonings on the record to allow accountability and effective appellate review).

Applicant respectfully submits that the cited references fail to teach or suggest, for example, "using **channel quality information** for at least one subscriber to **determine the timing** of the multi-cast service to the group of subscribers," or that "the **multi-cast service is transmitted in accordance with the timing determined by the channel quality information,**" as recited in claim 23.

Accordingly, Applicant respectfully submits that claim 23 is patentable over the cited references. Applicant further submits that independent claim 1 is patentable for at least the same reasons, and that dependent claims 2-10 are patentable at least by virtue of their dependency from independent claim 1, and also because those claims include features that are neither taught nor suggested by the cited references.

Claims 21 and 22

Claim 22 relates to a method for broadcasting to a group of subscribers in a cellular communication network. Claim 22 requires:

determining the channel quality information for a plurality of subscribers;
identifying the subscriber with the worst channel conditions;
scrambling a multi-cast service using a scrambling code known to the plurality of subscribers; and

transmitting the scrambled multi-cast service to the plurality of subscribers, wherein the scrambled multi-cast service is transmitted **in accordance with a transmission format that is optimal for the subscriber with the worst channel conditions.** (Emphasis added.)

Applicant respectfully submits that the cited references fail to teach or suggest, for example, “the scrambled multi-cast service is **transmitted in accordance with a transmission format that is optimal for the subscriber with the worst channel conditions,**” as recited in claim 22. Applicant submits that Noneman is similarly deficient.

Thus, Applicant respectfully submits that the cited references fail to teach or suggest at least the above recitations of claim 22. Accordingly, Applicant respectfully submits that claim 22 is patentable over the cited references. Applicant further submits that independent claim 21 is patentable for at least the same reasons.

Claim 25

Claim 25 relates to a method for efficient multi-cast broadcasting. Claim 25 requires:

generating an identifier for a group of subscribers, wherein the identifier is for accessing a multi-cast service;

identifying the subscriber with the worst channel quality by analyzing a plurality of channel quality feedback indicators from a group of subscribers;

selecting a timing and a transmission format of the multi-cast service so that the multi-cast service will be received by the subscriber with the worst channel conditions; and

transmitting the identifier on a first channel and the multi-cast service on a second channel **in accordance with the timing and the transmission format as determined by the subscriber with the worst channel quality.** (Emphasis added.)

With respect to claim 25, the Examiner has asserted that the limitations of those claims are well-known or obvious, but has not cited a reference to support of this position. Applicant respectfully traverses this rejection, and to preserve Applicant’s argument on appeal, Applicant requests that the Examiner provide an affidavit that supports the rejection of claim 25 based on the official notice of the Examiner. Alternatively, in the event the Examiner seeks to maintain this ground of rejection, Applicant requests that the Examiner provide documentary evidence that these features would indeed be well-known. *See* MPEP 2144.03, 37 C.F.R. § 1.104 (d)(2), and *In re Lee*, 277 F.3d 1338, 1344-45, 61 U.S.P.Q.2d 1430, 1435 (Fed. Cir. 2002) (finding that

reliance on “common knowledge and common sense” did not fulfill the PTO’s obligation to cite references to support its conclusions as PTO must document its reasonings on the record to allow accountability and effective appellate review).

Applicant respectfully submits that the cited references fail to teach or suggest, for example, **“selecting a timing and a transmission format of the multi-cast service so that the multi-cast service will be received by the subscriber with the worst channel conditions,”** or **“transmitting the identifier on a first channel and the multi-cast service on a second channel in accordance with the timing and the transmission format as determined by the subscriber with the worst channel quality,”** as recited in claim 25. Accordingly, Applicant respectfully submits that claim 25 is patentable over the cited references.

Claims 5 and 15

With respect to claims 5 and 15, the Examiner has asserted that the limitations of those claims are well-known. Applicant respectfully traverses this rejection, and to preserve Applicant’s argument on appeal, Applicant requests that the Examiner provide an affidavit that supports the rejection of claims 5 and 15 based on the official notice of the Examiner. Alternatively, in the event the Examiner seeks to maintain this ground of rejection, Applicant requests that the Examiner provide documentary evidence that these features would indeed be well-known. *See* MPEP 2144.03, 37 C.F.R. § 1.104 (d)(2), and *In re Lee*, 277 F.3d 1338, 1344-45, 61 U.S.P.Q.2d 1430, 1435 (Fed. Cir. 2002) (finding that reliance on “common knowledge and common sense” did not fulfill the PTO’s obligation to cite references to support its conclusions as PTO must document its reasonings on the record to allow accountability and effective appellate review).

Claims 10 and 20

With respect to claim 10 and 20, the Examiner asserts that the limitations of those claims are inherent in Mochizucki. Applicant respectfully traverses this rejection, and requests that the Examiner cite a reference that supports the rejection of claims 10 and 20.

REQUEST FOR ALLOWANCE

In view of the foregoing, Applicant submits that all pending claims in the application are patentable. Accordingly, reconsideration and allowance of this application are earnestly solicited. Should any issues remain unresolved, the Examiner is encouraged to telephone the undersigned at the number provided below.

Respectfully submitted,

Dated: February 6, 2004

By: *Erin P Madill*

Erin P. Madill, Reg. No. 46,893
(858) 658-2598

QUALCOMM Incorporated
5775 Morehouse Drive
San Diego, California 92121
Telephone: (858) 651-4125
Facsimile: (858) 658-2502